



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/606,108

06/25/2003

Kazushi Ogawa

075834.00420

4208

33448

7590

03/16/2005

ROBERT J. DEPKE LEWIS T. STEADMAN

HOLLAND & KNIGHT LLC

131 SOUTH DEARBORN

30TH FLOOR

CHICAGO, IL 60603

EXAMINER

RENNER, CRAIG A

ART UNIT

PAPER NUMBER

2652

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,108

Applicant(s) ☒

OGAWA ET AL.

Examiner

Craig A. Renner

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because of the following informalities:
 - a. In FIG. 16, reference sign "21a" should be changed to --22b-- in order to be consistent with the remainder of the disclosure.
 - b. In FIG. 19, lower-most reference sign "c" should be changed to --b-- in order to be consistent with the remainder of the disclosure
 - c. FIGS. 19-20 and 26-30 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings

Art Unit: 2652

for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Many elements in the claims are indefinite because they lack clear and/or positive antecedent basis including "said magnetic recording head" (line 3 of claim 1), "the magnetic recording head" (lines 2-3 of claim 2), and "the magnetic recording medium" (lines 4-5 in each of claims 8 and 14).

b. In line 24 of claim 7, it is indefinite as to whether the "tape shaped recording medium" is the same as that set forth in lines 2-3 of claim 7 or if this "tape shaped recording medium" is in addition to that set forth in lines 2-3 of claim 7.

c. In line 23 of claim 13, it is indefinite as to whether the "disc shaped recording medium" is the same as that set forth in lines 2-3 of claim 13 or if this "disc shaped recording medium" is in addition to that set forth in lines 2-3 of claim 13.

d. Claims 3-6, 9-12, and 15-18 inherit the indefiniteness associated with their respective base claims and stand rejected as well.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2652

8. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Shoji (JP 63-108515).

Shoji (JP 63-108515) teaches a magnetic head assembly (FIG. 1, for instance) including a magnetic head (10), wherein the magnetic recording head comprises a substrate (11); a first magnetic core (17) formed on the substrate; a second magnetic core (12) formed in the condition with a front end portion thereof having a predetermined magnetic gap (g) with respect to a front end portion of the first magnetic core (as shown in FIG. 1, for instance) and with a back end portion thereof connected to the first magnetic core (as shown in FIG. 1, for instance); and a coil (15) disposed between the first magnetic core and the second magnetic core (as shown in FIG. 1, for instance) for developing a magnetic flux between the front end portions of the first and second magnetic cores, a width (Tw) of the second magnetic core at the front end portion thereof is formed equal to or smaller than that of the first magnetic core (as shown in FIG. 1, for instance), and the second magnetic core is positioned at a leading side relative to the first magnetic core in a traveling direction on a magnetic recording medium (lines 9-10 of the CONSTITUTION, for instance) [as per claim 1]; wherein an auxiliary member (13, for instance) is adhered to the magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium (as shown in FIG. 1, for instance) [as per claim 2].

9. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Neumann (US 5,973,891).

Art Unit: 2652

Neumann teaches a magnetic head assembly (FIGS. 2A and 2B, for instance) including a magnetic head (50), wherein the magnetic recording head comprises a substrate (lines 24-26 in column 6, for instance); a first magnetic core (52) formed on the substrate; a second magnetic core (62) formed in the condition with a front end portion thereof having a predetermined magnetic gap (54) with respect to a front end portion of the first magnetic core (as shown in FIG. 2A, for instance) and with a back end portion thereof connected to the first magnetic core (as shown in FIG. 2A, for instance); and a coil (58) disposed between the first magnetic core and the second magnetic core (as shown in FIG. 2A, for instance) for developing a magnetic flux between the front end portions of the first and second magnetic cores, a width of the second magnetic core at the front end portion thereof is formed equal to or smaller than that of the first magnetic core (as shown in FIG. 2B, for instance), and the second magnetic core is positioned at a leading side relative to the first magnetic core in a traveling direction on a magnetic recording medium (64) (as shown in FIGS. 2A and 2B, for instance) [as per claim 1]; wherein an auxiliary member (lines 24-26 in column 6, for instance, i.e., "wear cap") is adhered to the magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium (lines 24-30 in column 6, for instance) [as per claim 2]; and wherein a saturation magnetic flux density of a material of the first magnetic core is chosen to be larger than that of the second magnetic core (lines 36-40 in column 6, for instance) [as per claims 3 and 4].

Art Unit: 2652

10. Claims 1-6 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US 5,812,350).

Chen teaches a magnetic disk drive unit (20) comprising a magnetic head assembly (32) for recording signals on a disk shaped recording medium (24) and a rotary driving mechanism (includes 26, for instance) for rotating the disk shaped recording medium, wherein the magnetic head assembly comprises a magnetic recording head (30) including a substrate (SUBSTRATE); a first magnetic core (includes 40 and 42, for instance) formed on the substrate; a second magnetic core (includes 44, for instance) formed in a condition with a front end portion (PT1) thereof having a predetermined magnetic gap (G3) with respect to a front end portion (PT2) of the first magnetic core and with a back end portion thereof connected to the first magnetic core; and a coil (38) disposed between the first magnetic core and the second magnetic core (as shown in FIG. 2, for instance) for developing a magnetic flux between the front end portions of the first and second magnetic cores, a width of the second magnetic core at the front end portion thereof is formed equal to or smaller than that of the first magnetic core (as shown in FIG. 8, for instance), and the second magnetic core is positioned at a leading side relative to the first magnetic core in a traveling direction on a disk shaped recording medium (as shown in FIG. 2, for instance) [as per claims 1 and 13]; wherein an auxiliary member (G1) is adhered to the magnetic recording head at the leading side and/or a trailing side in the traveling direction on the magnetic recording medium (as shown in FIG. 8, for instance) [as per claims 2 and 14]; wherein a saturation magnetic flux density of a material of the first magnetic core is chosen to be larger than that of the

Art Unit: 2652

second magnetic core (as shown in FIG. 10, for instance, i.e., $\text{Ni}_{45}\text{Fe}_{55}$ has a larger saturation magnetic flux density than $\text{Ni}_{80}\text{Fe}_{20}$) [as per claims 3-4 and 15-16]; and wherein the first magnetic core comprises two or more kinds of stacked films and a saturation magnetic flux density of a material of at least one film of the stacked films closest to the magnetic gap is chosen to be larger than that of the second magnetic core (as shown in FIG. 9, for instance, i.e., $\text{Ni}_{45}\text{Fe}_{55}$ has a larger saturation magnetic flux density than $\text{Ni}_{80}\text{Fe}_{20}$) [as per claims 5-6 and 17-18].

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 7-10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neumann (US 5,973,891).

Art Unit: 2652

Neumann teaches the magnetic head assembly as detailed in paragraph 9, supra, further wherein the magnetic head assembly is a component of a storage device (line 48 in column 7, for instance) wherein the recording medium can be either tape shaped or disk shaped (lines 61-62 in column 1, for instance). Neumann, however, remains silent as to the storage device further comprising a "tape driving means" as per claims 7-10, or a "rotary driving mechanism" as per claims 13-16.

Official notice is taken of the fact that each respective one of a tape driving means and a rotary driving mechanism is notoriously old and well known in the art for the purpose of increasing storage capacity by enabling information storage/retrieval over an entire length/circumference of a recording medium. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the storage device of Neumann further comprise a tape driving means or a rotary driving mechanism. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the storage device of Neumann further comprise a tape driving means or a rotary driving mechanism since such increases storage capacity by enabling information storage/retrieval over an entire length/circumference of the recording medium.

14. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 5,812,350).

Chen teaches the storage medium drive unit as detailed in paragraph 10, supra, further wherein the recording medium can be tape shaped (lines 33-35 in column 1, for

Art Unit: 2652

instance). Chen, however, remains silent as to the storage medium drive unit alternatively comprising a "tape driving means".

Official notice is taken of the fact that a tape driving means is notoriously old and well known in the art for the purpose of increasing storage capacity by enabling information storage/retrieval over an entire length of a tape shaped recording medium. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the storage medium drive unit of Chen alternatively comprise a tape driving means. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the storage medium drive unit of Chen alternatively comprise a tape driving means since such increases storage capacity by enabling information storage/retrieval over an entire length of the tape shaped recording medium.

Pertinent Prior Art

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Shouji et al. (US 5,831,801) and Sasaki et al. (US 6,259,585), which each individually teaches a magnetic head with a leading pole width smaller than that of a trailing pole that has a larger saturation magnetic flux density material film adjacent a magnetic gap; Toyoda et al. (US 4,947,541), Kawabe et al. (US 5,349,745), Takagishi et al. (US 6,125,018), Sasaki (US 6,296,776), Shukh et al. (US 2002/0176214), and Diepers et al. (DE 38 06 171), which each individually teaches a magnetic head with a leading pole width smaller than that of a trailing pole; and

Art Unit: 2652


Miyauchi et al. (US 5,850,325), which teaches a magnetic head with a leading pole width equal to that of a trailing pole that has a larger saturation magnetic flux density material film adjacent a magnetic gap.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Craig A. Renner
Primary Examiner
Art Unit 2652

CAR